

IN THE CLAIMS:

1. (currently amended) A method for receiving three-dimensional (3D) video in a receiver system, the method comprising:
in a receiver decoder:
accepting an electromagnetic waveform representing a bitstream with two interlaced fields, both encoded in a single first video frame, with a supplemental enhancement information (SEI) 3D content message;
analyzing display capabilities in response to being triggered by the SEI 3D content message;
if 3D display abilities are detected, decoding a first frame top field from the first video frame[[:]] and decoding a first frame bottom field from the first video frame; [[and,]]
if non-3D display capabilities are detected, decoding only one of the first video frame interlaced fields; and,
a display presenting an electromagnetic waveform representing the decoded top and bottom fields as a 3D frame image if 3D capable, and presenting a two-dimensional (2D) frame image if non-3D capable.
2. (previously presented) The method of claim 1 wherein accepting a bitstream with the first video frame encoded with two interlaced fields includes accepting the bitstream in a standard selected from the group including Motion Pictures Expert Group-2 (MPEG2), MPEG4, and ITU-T H.264 standards.

3. (original) The method of claim 1 wherein presenting the decoded top and bottom fields as a 3D frame image includes presenting the decoded top and bottom fields as a stereo-view image.

4-5. canceled

6. (previously presented) The method of claim 1 further comprising:

accepting 2D selection commands;

decoding only one of the first video frame interlaced fields in response to the 2D selection commands; and,

presenting a 2D frame image.

7. (original) The method of claim 6 wherein accepting 2D selection commands includes accepting 2D selection commands in response to a trigger selected from the group including receiving an SEI message, an analysis of display capabilities, manual selection, and receiver system configuration.

8. canceled

9. (previously presented) The method of claim 1 further comprising:

prior to accepting the first video frame, accepting a first encoded video frame;

deriving a predictive first frame top field;

deriving a predictive first frame bottom field;

wherein decoding the first video frame top field includes decoding the first video frame top field in response to the predictive first frame top field; and,

wherein decoding the first video frame bottom field includes decoding the first video frame bottom field in response to the predictive first frame bottom field.

10. (previously presented) The method of claim 1 further comprising:

prior to accepting the first video frame, accepting a first encoded video frame;

deriving a predictive first frame first field;

wherein decoding the first video frame top field includes decoding the first video frame top field in response to the predictive first frame first field; and,

wherein decoding the first video frame bottom field includes decoding the first video frame bottom field in response to the predictive first frame first field.

11. (original) The method of claim 10 wherein deriving a predictive first frame first field includes deriving a predictive first frame top field.

12. (original) The method of claim 10 wherein deriving a predictive first frame first field includes deriving a predictive first frame bottom field.

13. (previously presented) The method of claim 1 further comprising:

simultaneous with the presentation of the 3D image, presenting a 2D image in response to using one of the decoded first video frame interlaced fields.

14. (currently amended) A method for encoding three-dimensional (3D) video in a transmitter system, the method comprising:

in a transmitter encoder:

accepting an electromagnetic waveform representing a 3D video image, including a first view of the image and a second view of the image;

encoding the first view as a top field in a single first video frame;

encoding the second view as a bottom field in the first video frame; and,

transmitting an electromagnetic waveform into a channel representing a first video frame bitstream[[,]] having the top field interlaced with the bottom field in the single first video frame, and a supplemental enhancement information (SEI) 3D option message with the first video frame to trigger optional single field two-dimensional (2D) decoding in a receiver decoder into a channel.

15. (previously presented) The method of claim 14 wherein transmitting the first video frame bitstream having the top field interlaced with the bottom field includes transmitting the bitstream in a standard

selected from the group including Motion Pictures Expert Group-2 (MPEG2), MPEG4, and ITU-T H.264 standards.

16. (original) The method of claim 14 wherein accepting a current 3D video image, including a first view of the image and a second, 3D, view of the image includes accepting a first and second view of a stereo image.

17. canceled

18. (original) The method of claim 14 further comprising:
accepting a 2D command responsive to a trigger selected from the group including an analysis of receiver capabilities and the channel bandwidth; and,
transmitting the 2D command to a receiver.

19. (previously presented) The method of claim 18 further comprising:
transmitting only one of the fields from the first video view frame.

20. (previously presented) The method of claim 14 further comprising:
prior to accepting the current video image, accepting a first video image;
encoding a first image top field;
encoding a first image bottom field;

wherein encoding the first video frame top field includes encoding the first video frame top field in response to the first image top field; and,

wherein encoding the first video frame bottom field includes encoding the first video frame bottom field in response to the first frame bottom field.

21. (previously presented) The method of claim 14 further comprising:

prior to accepting the current image, accepting a first video image;

encoding a first image first field;

wherein encoding the first video frame top field includes encoding the first video frame top field in response to the first image first field; and,

wherein encoding the first video frame bottom field includes encoding the first video frame bottom field in response to the first image first field.

22. (original) The method of claim 21 wherein encoding a first image first field includes encoding a first image top field.

23. (original) The method of claim 21 wherein encoding a first image first field includes encoding a first image bottom field.

24. (currently amended) A three-dimensional (3D) video receiver system, the system comprising:

a decoder having an input connected to a channel to accept a bitstream with a single first video frame encoded with two interlaced fields and an output to supply a top field and a bottom field, both decoded from the first video frame; and,

a display having an input to accept the decoded fields, the display visually presenting the decoded top and bottom fields as a 3D frame image;

wherein the decoder receives a supplemental enhancement information (SEI) 3D content message with the first video frame, analyzes display capabilities, and, if non-3D display capabilities are detected, decodes only one of the first frame interlaced fields in response to the 3D option SEI message; and,

wherein the display visually presents a two-dimensional (2D) image.

25. (original) The system of claim 24 wherein the decoder accepts the bitstream in a standard selected from the group including Motion Pictures Expert Group-2 (MPEG2), MPEG4, and ITU-T H.264 standards.

26. (original) The system of claim 24 wherein the display visually presents the decoded top and bottom fields as a stereo-view image.

27-28. canceled

29. (previously presented) The system of claim 24 wherein the decoder includes a 2D decision unit to supply 2D selection commands,

and wherein the decoder decodes only one of the first video frame interlaced fields in response to the 2D selection commands; and,

wherein the display visually presents a 2D image.

30. (original) The system of claim 29 wherein the decoder 2D decision units supplies 2D selection commands in response to a trigger selected from the group including receiving an SEI message, an analysis of display capabilities, manual selection, and receiver system configuration.

31. canceled

32. (previously presented) The system of claim 24 wherein the decoder, prior to accepting the first video frame, accepts a first encoded video frame, derives a predictive first frame top field, derives a predictive first frame bottom field, decodes the first video frame top field in response to the predictive first frame top field, and decodes the first video frame bottom field in response to the predictive first frame bottom field.

33. (previously presented) The system of claim 24 wherein the decoder, prior to accepting the first video frame, accepts a first encoded video frame, derives a predictive first frame first field, decodes the first video frame top field in response to the predictive first frame first field, and decodes the first video frame bottom field in response to the predictive first frame first field.

34. (original) The system of claim 33 wherein the decoder derives a predictive first frame top field.

35. (original) The system of claim 33 wherein the decoder derives a predictive first frame bottom field.

36. (previously presented) The system of claim 24 wherein the display, as a selected alternative to the presentation of the 3D image, presents a 2D image in response to using only one of the decoded first video frame interlaced fields.

37. (currently amended) A three-dimensional (3D) video encoding system, the system comprising:

an encoder having an input to accept a 3D video image, including a first view of the image and a second, 3D, view of the image, the encoder encoding the first view as a frame top field and the second view as the frame bottom field, interlaced in a single first video frame, and the encoder having a channel-connected output to supply a first video frame bitstream;

wherein the encoder transmits a supplemental enhancement information (SEI) 3D option message with the first video frame, to trigger optional single field two-dimensional (2D) decoding.

38. (original) The system of claim 37 wherein the encoder transmits the bitstream in a standard selected from the group including Motion Pictures Expert Group-2 (MPEG2), MPEG4, and ITU-T H.264 standards.

39. (original) The system of claim 37 wherein the encoder accepts a first and second view of a stereo image.

40. canceled

41. (original) The system of claim 37 wherein the encoder transmits a 2D command responsive to a trigger selected from the group including an analysis of connected receiver capabilities and the channel bandwidth.

42. (previously presented) The system of claim 41 wherein the encoder encodes and transmits only one of the fields from the first video frame.

43. (previously presented) The system of claim 37 wherein the encoder, prior to accepting the current video image, accepts a first video image, encodes a first image top field, encodes a first image bottom field, encodes the first video frame top field in response to the first image top field, and encodes the first video frame bottom field in response to the first image bottom field.

44. (previously presented) The system of claim 37 wherein the encoder, prior to accepting the current image, accepts a first video image, encodes a first image first field, encodes the first video frame top field in response to the first image first field, and encodes the first video frame bottom field in response to the first image first field.

45. (original) The system of claim 44 wherein the first image first field is a first image top field.

46. (original) The system of claim 44 wherein the first image first field is a first image bottom field.

47. (previously presented) A three-dimensional (3D) video decoder, the decoder comprising:

an input connected to a channel to accept a single first video frame bitstream encoded with two interlaced fields and a supplemental enhancement information (SEI) 3D content message with the first video frame;

a 2D decision unit to analyze the SEI 3D content message, and if non-3D display capabilities are detected in an associated display, decoding only one of the first frame interlaced fields in response to the 3D option SEI message; and,

an output to supply a decoded single field selected from a group consisting of the first video frame top field and first video frame bottom field.